UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/775,032	01/31/2001	I-Jong Lin	10007845-1	8301

7590   08/12/2004

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EXAMINER
CARTER, AARON W

ART UNIT	PAPER NUMBER
2625	

DATE MAILED: 08/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/775,032	LIN ET AL.
	Examiner	Art Unit
	Aaron W Carter	2625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>24 May 2004</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 4-23* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,6,8-12,14 and 16-23* is/are rejected.

7)☒ Claim(s) *5,7,13 and 15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 January 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

U.S. Patent and Trademark Office

PTOL-326 (Rev. 1-04)   Office Action Summary   Part of Paper No./Mail Date 9

DETAILED ACTION

1.   This action is responsive to papers filed on May 24, 2004.

Response to Amendment

2.   In response to applicant's amendment received on May 24, 2004, all requested

changes to the specification and claims have been entered. Claims 2 and 3 have been

cancelled.

        Upon reconsideration of the prior art of record, the limitations previously

presented in dependent claim 3 have now been rejected, pleased see rejections made

below.

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4.   Claims 1, 4, 6, 8, 9, 11, 12, 14 and 16-23 are rejected under 35 U.S.C. 102(e) as

being anticipated by US Patent 6,388,654 to Platzker et al. ("Platzker").

As to claims 1, 16 and 20, Platzker discloses the method of locating objects

positioned in front of a computer controlled display area, the method comprising:

Deriving an intensity function by displaying and capturing first calibration objects

having different intensity values of the calibration objects and mapping the displayed

values to the captured values (column 8, lines 43-57, wherein features with know color or

light intensities corresponds to calibration objects, see also column 14, lines 35-58);

Deriving a coordinate location function by capturing second calibration objects

(column 8, lines 43-54, wherein features with know locations corresponds to calibration

objects);

Displaying an image having corresponding image data in the display area (Fig. 2a,

element 24);

Converting the image data into expected captured display area data using a

derived coordinate location function and a derived intensity function (column 8, lines 43-

57, wherein creating a reference image corresponds to converting the image data into

expected captured display area data);

Capturing the image in an image capture area to obtain captured data that includes

captured display area data corresponding to a predetermined location of the display area

in the capture area (Fig. 2a, element 22 and column 11, lines 41-45);

Comparing the expected captured display area data to the captured display area

data (column 12, lines 65-67);

Locating the objects by identifying non-matching compared data locations

(column 12, line 67 – column 13, line 2).

As to claim 4, Platzker discloses the method of claim 1, wherein displayed and captured intensity values are one of grayscale intensity values and color intensity values (column 8, lines 43-46).

As to claims 6, 12 and 17, Platzker discloses the method described in claim 2 further comprising deriving the location function from coordinate mappings using a perspective transformation (column 2, lines 12-23).

As to claims 8 and 21, Platzker discloses the method described in claim 1, further comprising comparing the expected captured display area data to the portion of the captured display area data corresponding to the predetermined location of the display area by:

Subtracting pixel values of the expected captured display area data from corresponding pixel values of the captured display area data to obtain difference data at each coordinate location of the display area (column 12, line 65 – column 13, line 2); and

For each coordinate location, comparing the difference data to a threshold noise value to identify the location of the objects in front of the display area (column 12, lines 58-60 and column 13, line 6).

As to claims 9 and 22, Platzker discloses the method described in claim 8, wherein the threshold noise value is dependent on lighting conditions, type of image displayed, and camera quality (column 12, lines 58-60).

As to claim 14, Platzker discloses a method of calibrating a system including a computer controlled display area and an image capture area of an image capture device comprising:

Displaying at least two intensity calibrations objects in at least one image within the display area (column 8, lines 43-44, wherein features corresponds to objects) each having a different associated displayed intensity value (column 8, lines 45-46, wherein known color or light intensities corresponds to different associated displayed intensity value);

Capturing the at least two displayed intensity calibration objects in the at least one image to obtain captured intensity values corresponding to the displayed intensity values (column 8, lines 46-48, wherein capturing viewed images corresponds to capturing objects);

Mapping the displayed intensity values to the captured intensity values (column 8, lines 47-48, wherein analyzing the appearance of predetermined features corresponds mapping values); and

Deriving the intensity function from the intensity value mappings (column 8, lines 55-57).

As to claim 11, Platzker discloses the method as described in claim 14, further comprising deriving the coordinate location function by:

Displaying a plurality of calibration images within the display area each including a calibration object having an associated coordinate location within the display area (column 8, lines 43-50);

Capturing a plurality of images of the display area within the capture area each

including one of the plurality of calibration images (column 8, lines 55-57);

For each captured image, mapping the coordinate location of the calibration

object in the display area to a coordinate location of the calibration object in the

predetermined location of the display area in the capture area (column 2, lines 14-23);

and

Deriving the location function from the display area to the captured display area

from the coordinate location mappings (column 2, lines 21-23).

As to claim 18, Platzker discloses the system as described in claim 16, wherein

the display area is one of a projection screen and a computer monitor and the image

capture device is one of a digital still camera, a digital video camera, an analog still

camera, and an analog video camera (Fig. 2a).

As to claim 19 and 23, Platzker discloses the system as described in claim 16

further comprising a means for predetermining the location of the display area in the

capture area by deriving constructive and destructive feedback data from image data

corresponding to a plurality of captured calibration images (column 2, lines 14-23).

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6.   Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Platzker as applied to claim 1 above, and further in view of US Patent 4,926,454 to Haendle et al. ("Haendle").

As to claim 10, Platzker discloses the method of claim 1, but neglects to explicitly discloses wherein pixel values at non-matching locations of the captured display area data are set to a first intensity value and the remaining pixel values of the captured display area data are set to a second intensity value. However, Haendle discloses a process of determining a difference image and converting that image from color into black and white (column 1, lines 54-61). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to take the comparing process of Platzker and convert the pixels of the difference image into two pixel intensity as taught by Haendle, this providing a complete suppression of noise (column 1, lines 50-53).

Allowable Subject Matter

7.   Claims 5, 7, 13 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8.   Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Aaron W Carter whose telephone number is (703) 306-
4060. The examiner can normally be reached on 7am - 3:30 am (Mon. - Fri.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Bhavesh Mehta can be reached on (703) 308-5246. The fax phone number
for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the
Patent Application Information Retrieval (PAIR) system. Status information for
published applications may be obtained from either Private PAIR or Public PAIR. Status
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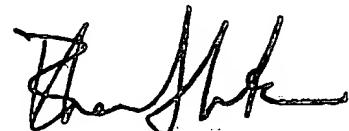
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